

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 1. (Currently Amended) A carbon nanotube device comprising:

2 a substrate including an aperture extending from a front surface
3 to a back surface of the substrate;

4 at least one pair of electrically conducting contact pads disposed
5 on a selected one of the front and back substrate surfaces with the conducting
6 contact pads in a given pair of pads and being separated from each other by
7 the aperture;

8 a carbon nanotube catalyst region of a solidified vapor deposit
9 disposed on top of each of the contact pads in alignment with an edge of the
10 aperture and exposed at the selected substrate surface; and

11 at least one carbon nanotube extending across the aperture and
12 accessible through the aperture from both the front surface and the back
13 surface of the substrate, each end of the carbon nanotube contacting located on
14 top of an exposed catalyst region on a contact pad at the selected substrate
15 surface.

1 2. (Original) The device of claim 1 wherein the carbon nanotube
2 comprises a single-walled carbon nanotube.

1 3. (Original) The device of claim 1 wherein the carbon nanotube
2 comprises a multi-walled carbon nanotube.

1 4. (Original) The device of claim 1 wherein the carbon nanotube
2 comprises a semiconducting carbon nanotube.

1 5. (Original) The device of claim 1 wherein the carbon nanotube
2 comprises a metallic carbon nanotube.

1 6. (Original) The device of claim 1 wherein the at least one carbon
2 nanotube comprises a plurality of carbon nanotubes.

7. (Canceled).

1 8. (Previously Presented) The device of claim 1 wherein the substrate
2 comprises a semiconducting substrate.

1 9. (Currently Amended) The device of claim 1 wherein the substrate
2 comprises a membrane having an aperture there-through and on a top surface
3 of which are disposed the contact pads and the catalyst regions.

1 10. (Original) The device of claim 9 wherein the membrane
2 comprises a silicon nitride membrane.

1 11. (Original) The device of claim 9 wherein the membrane
2 comprises a silicon dioxide membrane.

1 12. (Previously Presented) The device of claim 1 wherein the
2 substrate is aligned between a source of electrons and an electron detector for
3 nanometer-scale transmission electron microscopy of the carbon nanotube.

13. (Canceled).

14. (Canceled).

1 15. (Previously Presented) The device of claim 1 wherein the at
2 least one pair of electrically conducting contact pads comprises a plurality of
3 pairs of contact pads disposed at locations around the aperture.

Claims 16-30 (Canceled)

1 31. (Currently Amended) The device of claim 1 wherein the catalyst
2 regions are region is-less than about 2 nm in thickness.

1 32. (Currently Amended) The device of claim 1 wherein the catalyst
2 regions each cover region covers- a portion of a contact pad.

1 33. (Currently Amended) The device of claim 1 wherein the catalyst
2 regions each cover region covers- substantially an entire contact pad.

1 34. (New) The device of claim 1 wherein an edge of each contact pad
2 is at a periphery of the aperture.

1 35. (New) The device of claim 1 wherein the contact pads make
2 electrical connection to circuitry provided on the selected substrate surface
3 with the contact pads.

1 36. (New) The device of claim 1 wherein the contact pads make
2 electrical connection to at least one device provided on the selected substrate
3 surface with the contact pads.

1 37. (New) The device of claim 1 wherein the substrate comprises a
2 silicon substrate.

1 38. (New) The device of claim 1 further comprising a free-standing
2 membrane having an aperture there-through and supported at membrane
3 edges by the substrate, the membrane providing the selected surface on which
4 are disposed the contact pads and the catalyst regions.

1 39. (New) The device of claim 1 wherein the contact pads each
2 comprise a metal including at least one material selected from the group
3 consisting of Pt and Cr.

1 40. (New) The device of claim 1 wherein the catalyst regions each
2 comprise a material selected from the group consisting of Fe, Co, and Ni.

1 41. (New) The device of claim 1 wherein the catalyst regions are each
2 characterized by a layer coverage of no greater than about 17×10^{15} atoms/cm².